


Application Note

IP Change Notification (DDNS)

Version 1.7

 ***Caution: Contents of this document may be changed without prior notice for product improvement.***

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Contents

1	Overview	- 2 -
1.1	DNS (Domain Name System)	- 2 -
1.1.1	Overview	- 2 -
1.1.2	Procedure of DNS.....	- 2 -
1.2	DDNS (Dynamic DNS)	- 3 -
1.2.1	Overview	- 3 -
1.2.2	Procedure of the DDNS.....	- 3 -
1.3	Managing Dynamic IP addresses of ezTCP	- 3 -
2	DDNS	- 4 -
2.1	Overview	- 4 -
2.2	How to use	- 4 -
2.2.1	Create an Account of Dyn	- 4 -
2.2.2	Active the Account.....	- 4 -
2.2.3	Choose the service.....	- 5 -
2.2.4	Sign in.....	- 5 -
2.2.5	Add a Host name	- 6 -
2.2.6	Configuration of ezTCP	- 7 -
2.2.7	Test Run.....	- 8 -
3	TCP / UDP	- 9 -
3.1	Overview	- 9 -
3.2	Configuration of ezTCP.....	- 9 -
3.3	ASCII mode	- 10 -
3.3.1	Data format of ASCII mode.....	- 10 -
3.3.2	Exapmle.....	- 11 -
3.4	HEX mode	- 11 -
3.4.1	Hexadecimal mode	- 11 -
3.4.2	Exapmle.....	- 12 -
4	History	- 13 -

1 Overview

1.1 DNS (Domain Name System)

1.1.1 Overview

IP addresses are required for communication on the Internet but it is not easy to remember those addresses which are formed of numbers. Under this circumstance, DNS has been a great solution.

DNS is a service which allows a host to communicate with other hosts querying information of IP addresses and host names (hostnames) to a Name Server which has data.

1.1.2 Procedure of DNS

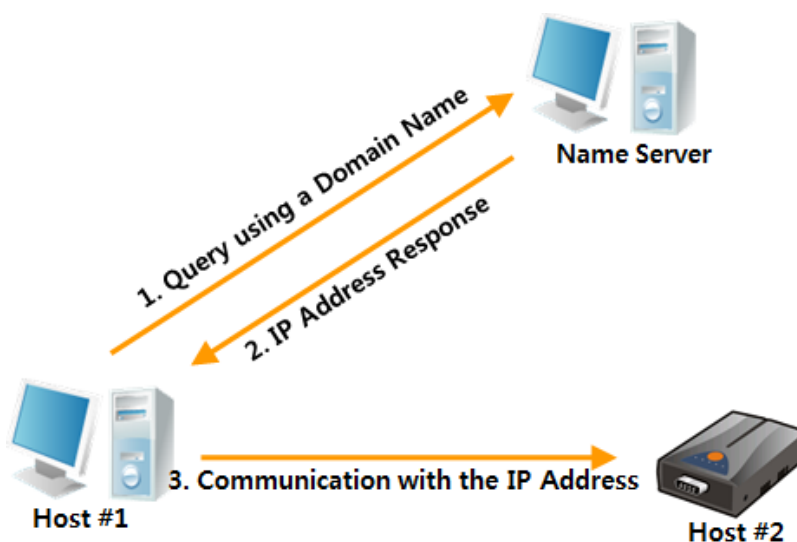


Figure 1-1 Procedure of the DNS

Host #1 who wants to communicate with Host#2 queries the equivalent IP address to the host name of Host#2 (e.g. www.sollae.co.kr) to a Name Server. After receiving information from the Name server, Host#1 can communicate with Host#2 with the IP address.

Thus, if Host#1 has the host name of Host#2, it can communicate with Host#2 on the Internet by using DNS.

1.2 DDNS (Dynamic DNS)

1.2.1 Overview

DDNS is a service which is used in Dynamic IP address environments.

1.2.2 Procedure of the DDNS

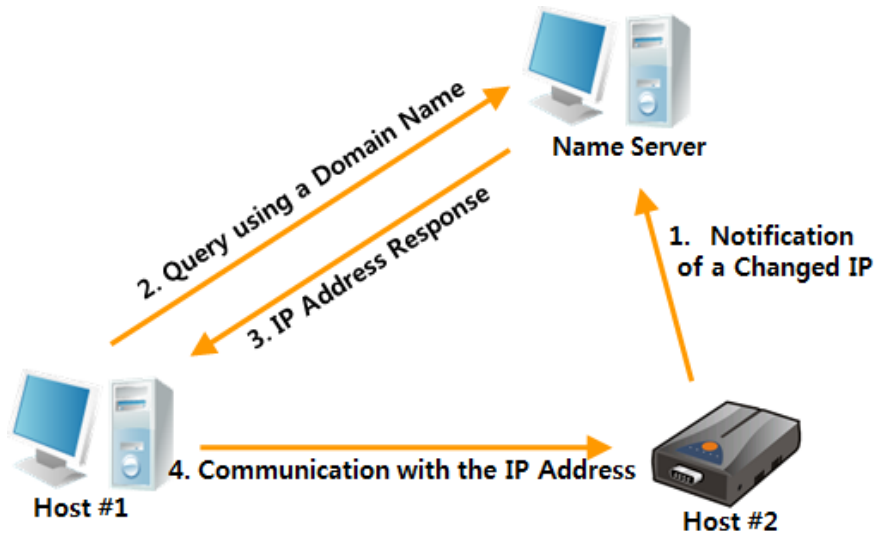


Figure 1-2 procedure of the DDNS

What is different from DNS is notifying the changed IP address to the Name server by Host#2. As a result, Host#1 can always reach to the Host#2 even if the IP address of Host#2 is changed.

1.3 Managing Dynamic IP addresses of ezTCP

There are three functions for managing changed IP addresses.

Table 1-1 functions of ezTCP

Service	Protocol	IP Trap	Note
DDNS	HTTP	HTTP	Service of Dyn
TCP	TCP	ASCII/HEX	Run a custom server
UDP	UDP	ASCII/HEX	Run a custom server

☞ *The functions may not be available on a few old products.*

2 DDNS

2.1 Overview

DDNS service of Dyn corp. is used for ezTCP DDNS function. Therefore, it sends data to a DNS server of Dyn with their format when their IP addresses are changed.

2.2 How to use

2.2.1 Create an Account of Dyn

Create an account on the web site of Dyn. (<http://www.dyn.com>)

2.2.2 Active the Account

When you click the [Create Account] button, the system sends you an e-mail for confirming the account. Just click the link so that the account is activated.

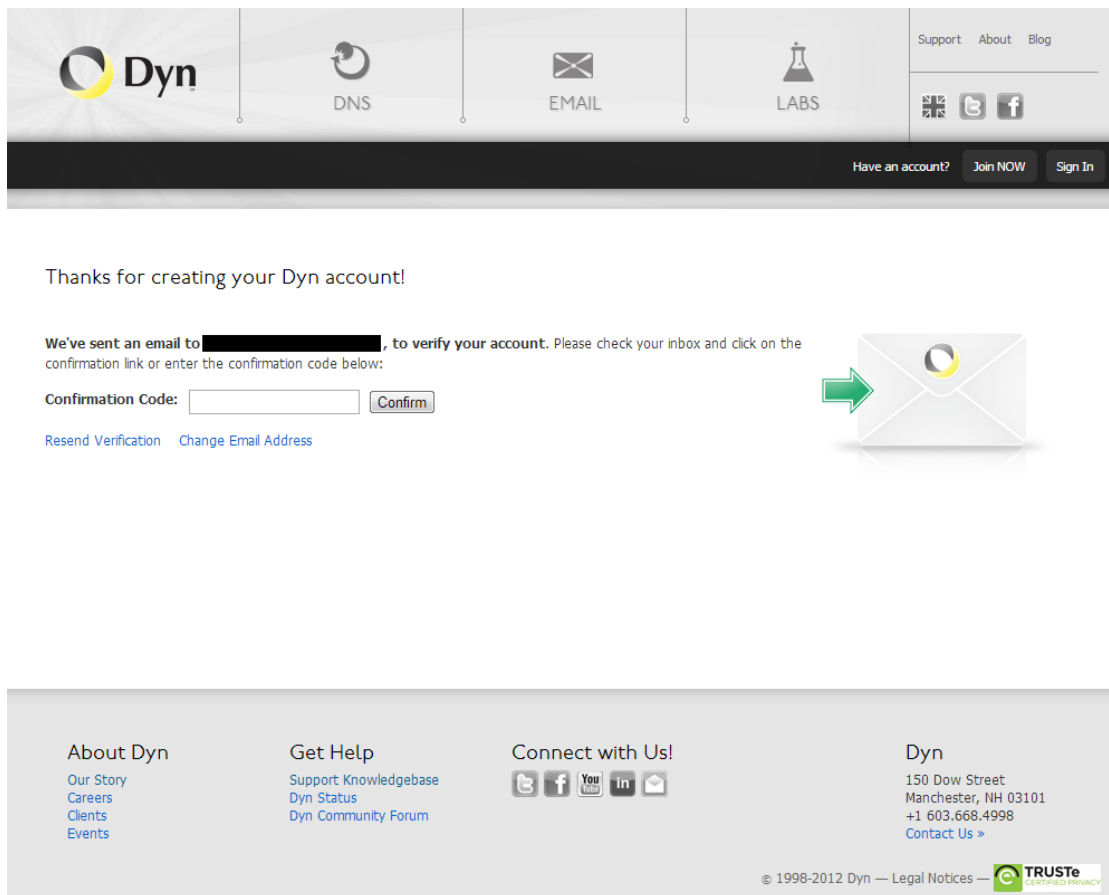


Figure 2-1 Active the account

2.2.3 Choose the service

You may choose one of their services if you want to use DDNS function. You can use a 14-day trial.

Congratulations! Your Account Is Now Active!

Account: [REDACTED] has been confirmed and activated. Please explore the following options to get started.

← most popular!

Features	DynDNS Pro \$20.00/yr CONTINUE	Dyn Standard DNS \$29.95/yr CONTINUE	DynECT Managed DNS Lite \$30.00/mo STARTING PRICE CONTINUE
Hostnames/DNS Records	25	75	100+
Domain name	Choose from one of ours	Custom Domain	DNS hosting from 10+ domains
Access to phone technical support	✓	✓	✓
Number of Users	1	1	100+
Data Centers	5 Unicast	5 Unicast	17 Anycast
Logs	Update history (24 hr.)	Update history (24 hr.)	Comprehensive change logs
SOAP/REST API	-	-	✓
	CONTINUE	CONTINUE	CONTINUE

Just starting out with Dynamic DNS? We offer a 14-day trial of DynDNS Pro!

Figure 2-2 page for selecting a service

All about the services could be changed anytime based on the policy of Dyn

2.2.4 Sign in

Move on to the [My Account] page after logging in with the created account.

My Services	Billing	Account Settings
View, modify, purchase, and delete your services.	Update your billing information, complete a purchase, and view invoices.	Update your email address, set preferences, and delete your account.
My Zones/Domains Add Zone/Domain Services	View Shopping Cart	Change Email Address
My Hosts Add Host Services	Active Services	Change Password
DynDNS Pro	Order History	Change Username
DynECT Managed DNS Lite	Billing Profile and Vouchers	Contact Manager
Internet Guide	Renew Services	Mailing Lists
Dyn Standard SMTP	Auto Renew Settings	Move Services
Support	Sync Expirations	Preferences
Premier Support		Close Account
Contact Support		

Figure 2-3 My Account page

2.2.5 Add a Host name

You will see the page below by clicking [Add New Domain name] on the My Account page

Figure 2-4 Add New Domain name page

- ① Domain name: Type a domain name (hostname). You had better to use a one that is easy to remember. (e.g. XXX.dyndns.org or YYY.ath.cx)
- ② Service Type: Select the [Host with IP address].
- ③ IP Address: Click the link written (Your current location’s IP address is ~). There is no problem to type a temporary IP address because the address will be changed.
- ④ Click the [Activate] button.

DYNDNS HOSTNAMES + Add New Hostname			
HOSTNAME	SERVICE	DETAILS	LAST UPDATED
appnote.dyndns.org	Host	[Redacted]	2012-10-26 4:42 PM

Figure 2-5 completion of adding a domain name

The domain name will be on the above list when it is successfully activated.

2.2.6 Configuration of ezTCP

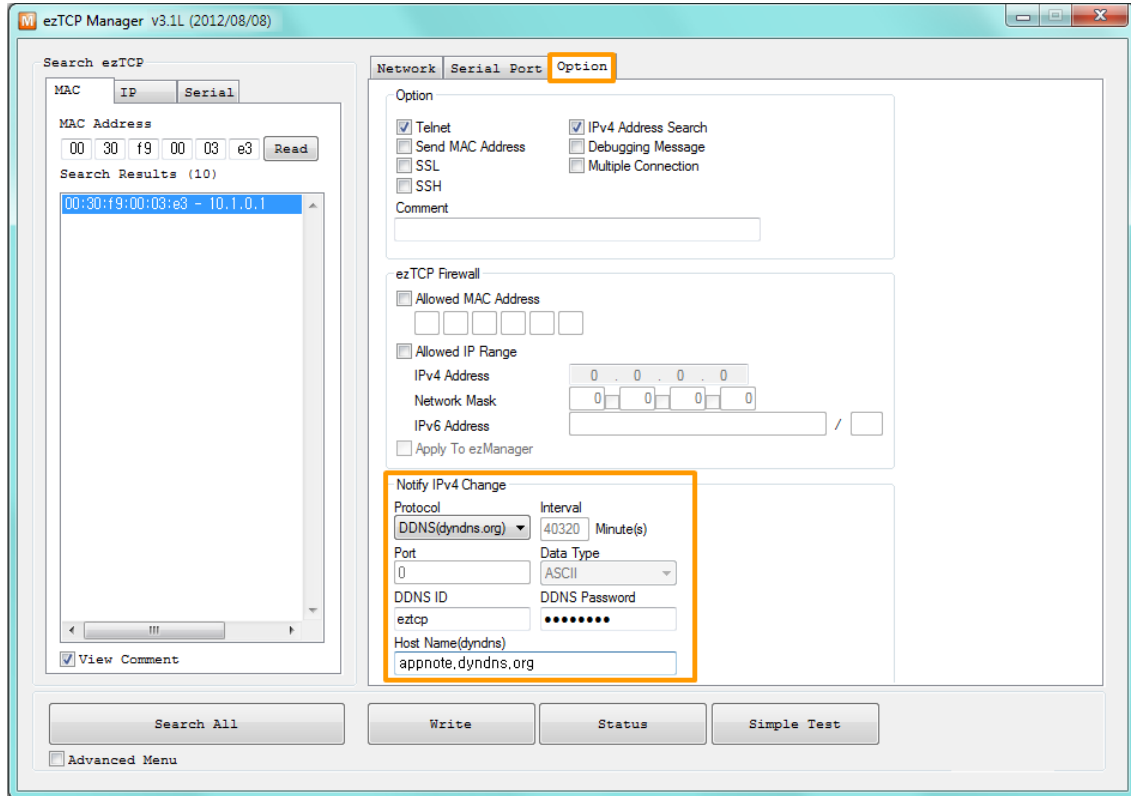


Figure 2-6 DDNS configuration of ezManager

Table 2-1 DDNS parameters

Parameter	Value	Note
Protocol	DDNS(dyndns.org)	DDNS of Dyn
Interval	40320(fixed)	28 days
DDNS ID	e.g. eztcp	ID of Dyn account
DDNS Password	e.g. password	Password of Dyn account
Host Name	e.g. appnote.dyndns.org	Activated domain name

2.2.7 Test Run

Check if the information is updated or not on the web site of Dyn. The service will work well if the information is listed on the table in figure below.

DDNS STATE
 UPDATE OK - good
 Hostname - appnote.dyndns.org
 Details - [REDACTED]
 Last Updated - Fri, 26 Oct 2012 08:04:29 GMT
 Last Uptime - 0 days / 00:00:07.15
 Next Uptime - 28 days / 00:00:07.15

DynDNS Pro and Host Services [↑ My Services](#)

DYNDNS HOSTNAMES + Add New Hostname			
HOSTNAME	SERVICE	DETAILS	LAST UPDATED
appnote.dyndns.org	Host	[REDACTED]	2012-10-26 5:04 PM

Figure 2-7 Test run by status window and web site of Dyn

☞ ***If ezTCP has a Private IP address, it check its outgoing Public IP address to Internet and use this Public IP address, instead of its own Private IP address.***

3 TCP / UDP

3.1 Overview

This option is for users who want to run an own management server for dynamic IP addresses environment. An ezTCP just sends information about MAC and IP address by selected protocol to the designed server. Thus, users are required to install and operate server program directly.

3.2 Configuration of ezTCP

An example for setting is the following.

Figure 3-1 example of configuration

Table 3-1 example of configuration

Parameter	Value	Note
Protocol	TCP or UDP	Select a protocol for updating the information.
Interval	e.g. 10	Each data is sent with 10 minutes interval.
Port	14700	Port number for communication.
Host Name	e.g. user.userserver.com (or 192.168.0.100)	Type the domain name or IP address of the management server.
Data Type	ASCII or Hexadecimal	Select a data type

☞ In the case of setting Interval to 0, ezTCP sends the changed IP address only when its IP address is changed.

3.3 ASCII mode

3.3.1 Data format of ASCII mode

In this mode, the data including the MAC and IP address is coded in ASCII. The format is as follows:

MAC Address	0x0d	0x0a
IP Address	0x0d	0x0a
Product Information	0x0d	0x0a
Comment	0x0d	0x0a

Figure 3-2 data format of ASCII mode

- MAC Address is composed to 6 bytes, and each byte separated with colon (:) in Hexadecimal.
- IP Address is composed to 4 bytes, and each byte separated with dot (.) in decimal.
- Product Information has the structure below:

Product ID (2byte)	Major Firmware Version (2byte)	Minor Firmware Version (2bytes)	Firmware Revision (2byte)
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Figure 3-3 structure of Product ID

- Comment represents the [Comment] field in environmental parameters. You can configure this parameter in the [Option] tab of ezManager.

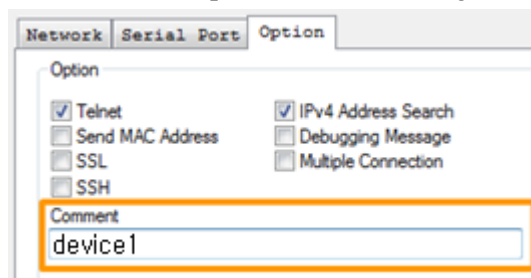


Figure 3-4 comment field

3.3.2 Exapmle

00:30:f9:00:00:01	0x0d	0x0a	192.168.1.50	0x0d	0x0a
15bytes (ezTCP MAC Address)	1byte	1byte	15bytes (ezTCP IP Address)	1byte	1byte
11010106	0x0d	0x0a	device1	0x0d	0x0a
8bytes (Product ID: 11, F/W ver. 1.1G)	1byte	1byte	7 bytes (Comment: device1)	1byte	1byte

Figure 3-5 an example of data structure in ASCII mode

ASCII	0	0	:	3	0	:	f	9	:	0	0	:	0	0	:	0
Hex	30	30	3a	33	30	3a	66	39	3a	30	30	3a	30	30	3a	30
	MAC Address 00:30:f9:00:00:01															

1	CR	LF	1	9	2	.	1	6	8	.	0	0	1	.	0
31	0d	0a	31	39	32	2e	31	36	38	2e	30	30	31	2e	30
	IP Address (1.2.3.4)														

5	0	CR	LF	1	1	0	1	0	1	0	6	CR	LF	d	e
35	30	0d	0a	31	31	30	31	30	31	30	36	0d	0a	64	65
				Product ID			Firmware Version							User	

v	i	c	e	1	CR	LF
76	69	63	65	31	0d	0a
Comment						

Figure 3-6 an example of data in ASCII mode

3.4 HEX mode

3.4.1 Hexadecimal mode

In this mode, the data including the MAC and IP address is coded in hexadecimal code. The format is as follows:

len	cm_len	Ethernet Address (6bytes)			
IP Address (4bytes)		p_id	major	minor	rev
Comment (variable length)					

Figure 3-7 data format of hexadecimal mode

Descriptions about each field are as follows:

Table 3-2 data fields of hexadecimal mode

Name	Length (byte)	Description
len	1	The length of data except for Comment field
cm_len	1	The length of Comment field
Ethernet Address	6	MAC Address
IP Address	4	IP Address
p_id	1	Product ID
major	1	Firmware Version (Major)
minor	1	Firmware Version (Minor)
rev	1	Firmware Version (Revision)
Comment	variable	Comment field in environmental parameters Null byte (0x00) is added in the end of the data.

3.4.2 Example

10	08	00	30	f9	00	00	01
len	cm_len	MAC Address (00:30:f9:00:00:01)					
c0	a8	01	32	11	01	01	06
IP Address (192.168.1.50)				p_id	Firmware version		
64	65	76	69	63	65	31	00
Comment 8bytes (device1 + NULL)							

Figure 3-8 an example of data in hexadecimal mode

4 History

Date	Version	Note	Author
2012.02.21	1.5	○ Initial Release	Roy LEE
2012.03.07	1.6	○ Correct some errors	Roy LEE
2012.10.29	1.7	○ Correct some errors ○ Add Public IP information for DDNS service ○ Modify example data of TCP/UDP	Andy LEE